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# Between-Person Disparities in the Progression of Late-Life Well-Being

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# Between-Person Disparities in the Progression of Late-Life Well-Being

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**Abstract**

Throughout adulthood and old age, levels of well-being appear to remain relatively stable. In this chapter, we argue that focusing on a phase of life during which this positive picture does not necessarily prevail promises to help us better understand between-person disparities in the progression of late-life well-being. In a first step, we review empirical evidence from the German Socio-Economic Panel and other large-scale longitudinal data sets to demonstrate that ubiquitous reports of a "stability-despite-loss phenomenon" of well-being do not generalize into years of life immediately preceding death. Instead, mean-level representations of the end of life are characterized by a rapid deterioration in well-being. In a second step, we highlight the vast heterogeneity in how people experience the last years and consider the role of biopsychosocial individual difference factors to account for such disparities. The select factors reviewed here include socio-demographic characteristics, cognitive fitness, pathology, and disability. In a third step, we argue that macro-contextual factors such as the social, service, and physical characteristics of the communities and societies people are living and dying in also profoundly shape the nature and progression of individual late-life well-being. Our conceptual reasoning forecasts some of the insights that can be gained by pursuing this line of research, but also underscores the challenges researchers must deal with.

Keywords: *Late-Life Well-Being, SOEP, BHPS, HRS*

JEL Classification: *I12, I31, Y8*

"*Most of the people are mildly happy most of the time*" (Biswas-Diener, 2009).

Even after major negative life events, most people often quickly adapt and return to their characteristic levels (Brickman & Campbell, 1971), and such 'set-points' are typically positive rather than neutral or negative (see Diener, Lucas, & Scollon, 2006). In this chapter, we review recent and ongoing endeavors that highlight the utility of focusing on a phase of life during which this positive picture of well-being does not necessarily prevail. Drawing from notions of terminal decline, we argue that the changes in well-being that occur late in life provide a venue for the examination of between-person disparities and the factors that contribute to them. In a first step, we review empirical evidence to suggest that such steep end-of-life declines in well-being and psychological health may indeed be a normative experience, but these declines are more a function of closeness to death than age itself. At the same time, not all individuals experience their last years alike, and while end-of-life decline may be normative, it should not be considered inevitable. There is tremendous variability in late-life patterns of change over time. Many people's well-being drops sharply into death, whereas others maintain their well-being into their last years. In a second step, we characterize how such between-person disparities in late-life well-being progress, and we highlight some of the key factors that contribute to such inequalities. These factors encompass key predictors of both mortality and well-being, including age (at death), gender, education, and disability. In a third step, we argue that such factors may not only reside at the individual level, but may also be found at the community or society level. In doing so, we review some of the possible mechanisms linking such macro-contextual factors to individual outcomes and inequalities in well-being change late in life. Throughout, we discuss how this line of research informs and contributes to further precision and refinement of widespread theories of well-being as well as conceptual notions implicating mortality as a major force underlying developmental change in the last years of life.

## THE PROGRESSION OF LATE-LIFE WELL-BEING:

## NORMATIVE TRENDS AND BETWEEN-PERSON DISPARITIES

We first summarize several theories of well-being and the myriad of empirical reports to demonstrate that well-being is relatively stable across adulthood and old age. We then review an emerging body of findings suggesting that well-being shows terminal decline at the end of life and discuss implications that arise from these findings for theories of well-being and aging. We finally highlight that the progression of late-life well-being encompasses both alarmingly steep normative proximate-to-death deteriorations and large between-person inequalities therein.

### Well-Being is Stable Across Adulthood and Old Age

Many developmental theories of well-being and self-regulation suggest that well-being remains relatively stable across adulthood and old age. For example, hedonic treadmill models of well-being highlight the role of adaptation processes through which people quickly adapt to changes in life circumstances (Brickman & Campbell, 1971). As a consequence, positive and negative events only have short-term effects, with people returning back to their characteristic initial levels quickly thereafter. Thus, normatively, well-being remains stable over the long-term. Socioemotional selectivity theory (Carstensen, 2006) also provides a framework for normative stability. Here, motivational shifts towards emotional and social goals occurring in conjunction with changes in future time perspective (e.g., how much longer one expects to live) lead to prioritizing the maintenance of well-being. A common theme underlying these and other action-theoretical accounts of development (e.g., Brandstädter, 1999; Heckhausen & Schulz, 1995; Baltes & Baltes, 1990) is that an objective worsening

of life conditions in old age (e.g. increased health constraints or social losses) does, on average, not affect well-being. Well-being is maintained and remains stable.

These conceptual arguments map onto the results of numerous cross-sectional and longitudinal studies finding that various facets of well-being remain relatively stable across the adult life (Argyle, 1999; Carstensen et al., 2000; Costa et al., 1987; Diener et al., 2006; Diener, Suh, Lucas, & Smith, 1999; Griffin et al., 2006; Haynie et al., 2001; Kunzman et al., 2000; Mroczek & Kolarz, 1998). After reviewing cross-sectional findings from large-scale probabilistic samples across several nations, Diener and Suh (1998) concluded that "*life satisfaction appears to be relatively stable across age cohorts in most societies*" (p. 310). Similarly, longitudinal studies evidenced that the emotional well-being facet of positive affect shows stability until age 65 and declines slightly thereafter, and the emotional well-being facet of negative affect remains virtually unchanged into old age (Charles, Reynolds, & Gatz, 2001; Kunzmann, 2008). In sum, although interpreted from different perspectives and implicating different underlying mechanisms, there is general consensus that age-related patterns of well-being over time are characterized by stability. As noted by Biswas-Diener (2009), "*Most of the people are mildly happy most of the time*."

**A "Stress-Test" Paradigm for Examining Inequalities: Well-Being Declines with Impending Death**

Methodologically, pervasive and normative stability does not provide a particularly robust venue for the examination of inequalities. Rather, to achieve a better understanding of the mechanisms leading to differences, we need variance. We need a venue where inequalities are expressed and can be readily observed. For example, in the diagnosis of heart disease, individuals are typically subjected to an exercise "stress-test" wherein their cardiovascular reactivity and regulation is observed as their bodies are pushed towards their physiological limits (e.g., walking or running on a treadmill). Such paradigms

have also been used in the examination of differences in cognitive plasticity. For example, in their "testing-the-limits" paradigm, Kliegl, Smith, and Baltes (1990) pushed individuals to the limits of their mental (learning) capacity in order to better measure and understand the mechanisms contributing to differences or "inequalities" in cognitive function. The general idea of these experimental paradigms is to produce a situation where interindividual differences stand out in "relief" and can be more easily observed. Differences in cardiovascular function are not so apparent when individuals are resting or going about their daily lives. However, under "stress" conditions, differences in functionality become readily apparent, can be diagnosed and subsequently treated. Following this logic, we propose that "stress-test" paradigms may also be useful in the study of inequalities in well-being. In contrast to the stability and general happiness usually observed, a natural experiment wherein individuals' adaptive capacities are being pushed to their limits should provide for new opportunities to observe previously often overlooked differences in well-being, diagnose the inequalities, and identify possible mechanisms/treatments.

Studies of late-life well-being and terminal decline suggest that impending death may provide a natural "testing-the-limits" paradigm for studying inequalities in well-being. Conceptually, developmental changes during adulthood and old age result from primary or normal forms of aging, secondary or pathological aspects of aging, and tertiary or mortality-related processes of aging (Birren & Cunnigham, 1985; Busse, 1969). Acknowledging that developmental change at the end of life reflects a combination of these three mechanisms, notions of terminal decline (Kleemeier, 1962) suggests that, as people approach death, mortality-related processes may rise to the forefront and become the primary force underlying late-life changes. The accumulation of mortality-related burdens and systemic dysfunction (e.g., in physical and/or cognitive health) should "stress" the system and "test-the-limits" of individuals' adaptive and regulatory ability and make it increasingly difficult to maintain a sense of well-being. In essence, approaching death serves as an absorbing state that drags individual

functioning, including well-being, down. As this occurs, inequalities in (trajectories of) well-being and the underlying mechanisms should become more pronounced. Although providing a pessimistic perspective, mortality-related declines in well-being may offer a unique opportunity to observe and understand the mechanisms that contribute to inequalities in well-being.

Evidence is accumulating that the prevailing happiness and stability picture of well-being does not hold during the last years of a person's life (Gerstorf, Ram, Estabrook, Schupp, Wagner, & Lindenberger, 2008; Gerstorf, Ram, Röcke, Lindenberger, & Smith, 2008; Mrozcek & Spiro, 2005). For example, data from now deceased, 70 to 100 year old participants in the Berlin Aging Study (BASE) suggest that interindividual differences in within-person changes in well-being were better represented in relation to distance-to-death than in relation to chronological age (Gerstorf, Ram et al., 2008b). The variance accounted for (calculated as the pseudo-$R^2$, after Snijders & Bosker, 1999) increased from less than 8% in the age-related change model to almost 17% in the mortality-related change model. In line with other studies and as illustrated in the upper panel (A) of Figure 1, the rate of age-related decline in well-being was relatively minor (– 0.33 T-score units per year). In contrast, mortality-related models over distance-to-death revealed considerably steeper average rates of decline (– 0.75 T-score units per year). As can be obtained from the lower panel (B) of Figure 1, the end of life indeed appears to provide for a "testing-the-limits" situation.

----- Figure 1 -----

Similar results in analyses of decedents from national data sets in Germany (Socio-Economic Panel), the UK (British Household Panel), and the US (Health and Retirement Study; for overview, see Siedler, Schupp, & Wagner, in press) gives us some level of confidence in these pronounced late-life deterioration in well-being with approaching death (Gerstorf, Ram et al., in press). For overview, the middle columns of Table 1 contrast the linear rates of well-being change per year over chronological age and distance-to-death separately by study and nation.

----- Table 1 -----

Inherent in the conceptual notion of terminal decline is that two phases of late-life change can be distinguished: A pre-terminal age-dominated phase of relative stability or minor decline, followed by transitioning into a terminal mortality-dominated phase of precipitous decline (Kleemeier, 1962; Riegel & Riegel, 1972; Siegler, 1975; for overviews, see Bäckman & MacDonald, 2006; Berg, 1996). Despite these conceptual notions having been around for decades, they lack specificity regarding when the onset of terminal decline can prototypically be expected to occur. For example, Birren and Cunningham (1985) proposed that a "*cognitive and social slipping*" may occur some "*months to years*" prior to death (Birren & Cunningham, 1985, p. 21). Following pioneering work in the cognitive aging literature (Sliwinski et al., 2006; Wilson et al., 2003, 2007), we have applied recent developments in multi-phase growth modeling to estimate empirically the prototypical location of this transition. Results from various data sets converged on a time window between three and five years prior to death after which normative rates of well-being decline steepened by a factor of three or more (for overview, see the right-hand column of Table 1). Again, effect sizes for this decline are gloomy: The prototypical individual's life satisfaction (e.g., among decedents in the national German data) declines nearly a full standard deviation over the last four years of life.

**Conceptual Implications**

Several implications arise from these findings for theories of well-being and aging in general. First, contrasting what would be expected by theories of hedonic adaptation (e.g., Brickman & Campbell, 1971), it appears that with approaching death it is increasingly difficult to maintain well-being. Our findings can be interpreted to indicate that mortality-related mechanisms or other progressive processes leading towards death (e.g., deteriorating health) overwhelm the regulatory or motivational mechanisms that usually keep well-being stable, and mortality-related processes become the prime

drivers of late-life decline in well-being. One of the key questions in this regard is whether or not well-being is inherently involved in these mortality processes. One line of reasoning has argued that, for example, well-being ratings primarily reflect summary perceptions of what is going on in other domains of functioning that are more directly linked to mortality (Maier & Smith, 1999). Other lines of reasoning have highlighted that well-being itself may (directly or indirectly) be part of the mortality dynamics, either because of its motivational and behavioral consequences (Levy, Slade, Kunkel, & Kasl, 2002) or because of its physiological effects on cardiovascular and immune functioning (Danner, Snowdon, & Friesen, 2001; Pressman & Cohen, 2005).

Second, the ostensibly normative pattern also provides a rather disconcerting image of late-life psychological health that qualifies notions of successful aging (Rowe & Kahn, 1997; see Baltes, 2006). It is plausible that with limitations in perceived lifetime people indeed get better and better in optimizing their emotion regulation (Carstensen, 2006), but the pervasive nature of impending death may bring a sharp end to the possibilities afforded by such age-related increases in self-regulation.

Third, there exists a "soon to die" segment in the population of highly developed nations for whom a central indicator of quality of life is rapidly deteriorating or who simply report being fairly unsatisfied. For example, individuals in the nationally representative sample from Germany who died older than age 85 reported average levels of well-being that were below the neutral point (see Gerstorf, Ram et al., 2008a).

Fourth and finally, empirically localizing the normative onset of transitioning to the terminal phase of life informs future theoretical specifications of when end-of-life decrements can typically be expected to begin and how they may proceed (Birren & Cunningham, 1985). This illustrates that the gained precision in description (through applying methodological advances) requires and calls for new precision in theory. One central question to be addressed in future inquiries relates, of course, to why it

is that the normative onset is located in a three-to-five year window prior to death rather than, let's say, two years prior to death or even in the last year of life.

**Between-Person Disparities in Late-Life Well-Being**

Although the normative picture of late-life change painted above is one of seemingly inevitable decline in well-being, there are substantial interindividual differences in when and how individuals experience their last years of life. Individuals vastly differ from one another in how much well-being they report as well as in the amount of decline well-being shows with impending death. These are exactly the differences and inequalities we are after here.

***When.*** The above reports noted that the prototypical transition into the terminal-decline phase occurs between three and five years prior to death. However, this represents an "average" estimate at the population level based on the very strict assumption that the location of the transition point does not vary across individuals. In other words, all persons are assumed to transition into terminal decline at exactly the same point in time. While likely unrealistic, such an assumption is often required by the limited nature of within-person change data available (e.g., five or six measurement occasions: Gerstorf, Ram et al., 2008b; Sliwinski et al., 2006; Wilson et al., 2003, 2007).

Using data from 400 individuals who provided 12 or more data points over 25 years, we were able to relax this assumption and allow for interindividual differences in the timing of the transition to terminal decline (Gerstorf, Ram et al., 2008a). As expected, there were considerable between-person differences in where the estimated transition point was located. While individuals, on average, transitioned to the terminal phase at roughly four years before death, some individuals entered earlier (e.g., six or eight years prior to death), while others entered later (e.g., two years prior), and still others did not show any evidence of entering the terminal phase. Overall, individuals enter the terminal-decline phase at times ranging from 13 years before death to just before death to not at all. These latter

individuals have likely not experienced the transition because they have died earlier than expected, presumably of some "random cause" (e.g., accident; sudden stroke), before they entered terminal decline.

***How.*** Just as individuals differ in the timing of the transition into terminal decline, they also differ in the extent of those declines. All studies have noted significant variability in rates of mortality-related change. For example, among the 400 SOEP participants, the average rate of terminal decline was 3.51 T-score units per year, but some individuals declined substantially more (e.g., 6 T-score units per year), while others declined hardly at all (e.g., 0.5 T-score units per year). Modeling the transition with individual specificity was not possible in other samples, but similar differences in rates of change were noted across studies.

In sum, the extent of interindividual differences in well-being stand out dramatically when the focus is on examining changes in well-being at the end of life. Our modeling efforts and findings suggest that while some segments of society experience great decrements in psychological health as they approach death, other groups of individuals maintain key aspects of quality of life into the very last years. Noting these differences prompts a quest to identify the reasons why such inequalities in late-life well-being arise. Insights into why some persons experience fewer years of decline, or less steep rates of decline prior to death may point to particular pathways for intervention (Baltes & Baltes, 1990; Berkman et al., 1993; Rowe & Kahn, 1997). In the following section, we review theoretical arguments and empirical results regarding key candidate factors that may contribute to such disparities.

## DISPARITIES IN THE PROGRESSION OF LATE-LIFE WELL-BEING: THE ROLE OF INDIVIDUAL FACTORS

In the above section, we have identified a venue wherein the mechanisms contributing to changes and differences in well-being may be more easily observed, and we have highlighted the extent of between-person inequalities in the experience of late-life well-being. In this section, we investigate factors underlying these differences. Specifically, we identify some of the specific variables that may contribute to disparities in well-being. Figure 1 provides a selective list of prime candidate individual factors that may affect (trajectories of) late-life well-being. In turn, we discuss theoretical notions highlighting the role of each factor and review the available empirical evidence.

----- Figure 2 -----

### Chronological Age

Late-life changes in well-being and the interindividual differences therein appear to be driven primarily by mortality-related change processes and more efficiently charted in relation to impending death (as opposed to age, or time from birth). However, chronological age may still be part of the picture and profoundly influence late-life well-being (see Figure 2): People who are dying at relatively younger ages may experience their last years differently from people who are dying at relatively older ages. Conceptual arguments suggest differences that may go in either direction. Riegel and Riegel (1972), for example, have argued that the effects of mortality-related processes are diminished in very old age because people in their 80s or 90s often die from more random causes than relatively younger individuals, let's say in their 70s. A contrasting conceptual perspective suggests that the effects of

mortality-related processes are exacerbated in very old age. For example, Baltes and Smith (2003) have argued that the vulnerability, unpredictability, and bio-cultural constraints that appear in very old age will make the system of self-protective processes associated with the maintenance of well-being become increasingly vulnerable.

The empirical evidence regarding age differences in the progression of end-of-life well-being is fairly consistent in suggesting that the oldest old are often at the limits of their adaptive capacity. There is evidence to suggest that the pathways into mortality for very old individuals are portended by relatively stronger well-being decline and/or by spending more years in the terminal periods of decline than individuals dying at earlier ages. For example, in the Berlin Aging Study we found that the rate of mortality-related well-being decline for individuals who died after age 85 was twice as steep than that of individuals who died when between ages 70 to 84 years. Similarly, those dying at older ages exhibited a three-fold increase in steepness of decline from the pre-terminal phase to the terminal phase, relative to a much shallower increase for those dying at younger ages. When looking at differences in the onset of terminal decline, we found that individuals dying at older ages spent more years in the terminal periods of life satisfaction decline than individuals dying at earlier ages. This effect amounted to an estimated additional seven months being spent in the terminal-decline phase per additional decade lived (Gerstorf, Ram et al., 2008a). This overall pattern is in line with the virtual lack of empirical support for the Riegel and Riegel hypothesis in the large body of research accumulated in the cognitive aging literature. If anything, studies suggest the opposite with steeper cognitive decline per additional year of age (for review, see Bäckman & MacDonald, 2006).

By and large, the evidence to date suggests that the effects of terminal decline are more pronounced with greater age at death. A related point to be targeted more specifically in future research is how late-life well-being changes manifest in individuals who die at relatively young ages, lets say in their 50s or 60s. Following the reasoning of increasing limits in adaptive capacity (Smith & Baltes, 2003), one

might argue that middle-aged adults, relative to older people, may have a larger pool of resources to draw from and thereby might be better able to ward-off the detrimental effects of impending death. There is initial evidence to suggest that late-life declines in well-being are not restricted to individuals who died in old age, but are also found when all adult decedents, no matter their age of death are examined (Gerstorf, Ram et al., in press). If substantiated, this pattern speaks to the pervasive nature of mortality-related processes, but also signals that more in-depth work is necessary to thoroughly examine these and other age-differential questions (e.g., the role of cause of death).

**Gender**

Gender-linked inequalities have long been acknowledged in the lifespan and gerontological literature (for overview, see Moen, 1996). To start with, various life course sociological theories contend that women have experienced status and opportunity disadvantages throughout their lifetime and across a variety of different life domains including education, work, social status, family life, and finances (Elder, 1998). It is argued that such disadvantages follow current cohorts of women into old age and continue to reveal lasting negative effects into the last years (cf. Smith & Baltes, 1998). In a similar vein, the objective life circumstances late in life can be expected to be different for men and women. Regarding health, for example, it is well established that women typically experience more debilitating diseases than do men (Crimmins, 2001). Also, demographic trends show that women have higher life expectancies than men and that husbands are prototypically older than their wives. Both demographic factors make for a scenario where women must often deal with the late-life challenges as widows, whereas older men are often still married and able to draw resources from their partners (see Suzman, Willis, & Manton, 1992; Turner & Troll, 1994). Conjointly, all these factors suggest that one can expect gender differences to persist into and be readily apparent late in life (see Figure 2), and women can be expected to be more vulnerable than men.

Empirical evidence addressing such notions is relatively scarce, partly due to several study samples exclusively involving men, but no women. For example, the above conceptual reasoning may be taken to suggest that the steep well-being decline exhibited by men from the Normative Aging Study who died within one year after assessment (Mroczek & Spiro, 2005) may not generalize to women. Instead, women's reports of late-life well-being may be even lower or show more abrupt decline. Detailed studies are warranted to pinpoint if and how lower levels of well-being found in some middle-aged and older samples (e.g., more depressive symptoms: Smith & Baltes, 1998) persevere into the last years and to address the extent to which gender may moderate the progression of late-life change.

**Education**

People in different educational strata or, by implication, socioeconomic strata may experience the last years of life differently. One of the central arguments is that people with higher educational attainment may have more resources to adapt to late-life challenges and thereby are better equipped to maintain well-being into late in life (see Figure 2). Such resources are thought to generally help individuals achieve their goals and deal with changes in living conditions, and thus encompass a variety of factors ranging from finances to personal characteristics, such as self-regulation strategies. In contrast, one opposing view may suggest that end-of-life declines are so pervasive and all-absorbing that pre-existing differences are diminished or even eliminated.

A relatively ubiquitous finding in studies of adult samples is that education and socioeconomic conditions show small, but positive and consistent associations with levels of well-being across adulthood and old age (for reviews, see Argyle, 1999; Diener et al., 1999). It is a fairly open question, however, whether differences between education groups in late-life well-being exist, and if so, whether they reflect the persistence of differences that have already existed since earlier phases of adulthood or whether such differences become minimized or exacerbated at the end of life.

**Pathology and Disability**

Etiological questions about what underlies precipitous late-life declines in well-being have not yet been thoroughly addressed, but processes of pathology and disability can be expected to play a major role (see Figure 2). The Disablement Process model, for example, implicates disability as a major force underlying developmental change (Verbrugge & Jette, 1994). According to this model, intra-individual resources such as a high levels of well-being may serve as a protective factor in the course of disablement, while low levels of well-being may exacerbate rates of physical decline. Likewise, being multi-directional in nature, this disability-driven perspective suggests that systematic changes in well-being may be driven by the time course over which individuals experience an accumulation and increasing severity of chronic diseases and disability (see Ram, Gerstorf, Fauth, Zarit, & Malmberg, 2009). It is similarly conceivable that the different causes of death in very old age and the conditions associated with the process of dying may account for differential portions of between-person disparities in terminal decline of well-being. More specifically, people who have died from debilitating diseases may be more likely to display steeper well-being declines than people who have died from more sudden causes of death (e.g., stroke or heart attack).

What does the empirical evidence suggest? To begin with, severe disability has been reported to be associated with long-lasting changes in well-being (e.g., lower levels persist over time: Headey, 2008; Lucas, 2007). Future research should thus specifically target if, for example, terminal decline in well-being is steeper among persons with late-life disability relative to non-disabled older persons. It would also be instrumental to determine the shared and unique contributions of processes involved in accumulating disability and approaching death to late-life changes in well-being. In addition, the cognitive aging literature suggests that terminal decline is relatively independent of cause of death (e.g., Anstey et al., 2006; Small et al., 2003; but see Wilson et al., 2007), but this pattern may not

generalize to terminal decline in well-being. Unfortunately, researchers are often unable to examine such questions with the data at hand because (reliable) information about cause of death is not available. If data were indeed available, substantial insights into the phenomenon could be gained.

**Cognitive Fitness**

A final individual factor we discuss in this chapter is cognitive fitness (see Figure 2). This is important because mortality-related declines in well-being may merely reflect the effects of low levels of cognitive functioning or cognitive decline and thereby essentially parallel the well-established cognitive terminal decline (Bäckman & MacDonald, 2006). In other words, well-being declines may simply be an epiphenomenon of cognitive declines. Another position highlighting the relevance of taking into account cognitive fitness and deteriorations therein argues for a possible downward cascade of steps involving an initial decline in intellectual functioning, followed by a decline in subjective well-being, and finally death (cf. Maier & Smith, 1999; see also Birren, 1959).

Again, the empirical evidence is very sparse and much more work is needed to fully resolve this open issue. Evidence from the Berlin Aging Study, however, has provided some level of evidence to suggest that terminal decline in life satisfaction cannot be attributed to cognitive impairments and decline alone (Gerstorf, Ram et al., 2008b). More specifically, we examined the role of clinical diagnosis of dementia and perceptual speed at baseline assessment as time-invariant predictors, as well as preclinical dementia as a time-varying predictor of between-person inequalities in level and change of well-being. Results revealed (a) no predictive effects of cognitive functioning for well-being decline, (b) low intercorrelations between cognitive declines and well-being declines, and (c) that the overall pattern of mortality-related well-being decline remained unchanged after cognitive functioning was taken into account. In sum, there was no evidence for a primacy of cognitive terminal decline over mortality-related decline in life satisfaction. However, limitations of statistical power make it difficult

to provide definitive answers regarding such cross-domain links (Hertzog, Lindenberger, Ghisletta, & von Oertzen, 2006).

In sum, we have reviewed theoretical accounts and empirical reports that a number of individual factors may play a pivotal role for between-person disparities in the progression of late-life well-being. Our review has been selective in nature and many further factors such as race and ethnicity can be expected to profoundly shape late-life well-being (see Jackson, Antonucci, & Gibson, 1995; Whitfield & McClearn, 2005), but have rarely been targeted in empirical research. Examining these variables separately or, preferably conjointly (see Baltes & Smith, 1997; Garfein & Herzog, 1995), will shed light on why some individuals are capable of maintaining well-being into very late in life, whereas many others' well-being declines steeply.

## DISPARITIES IN THE PROGRESSION OF LATE-LIFE WELL-BEING: MOVING BEYOND THE INDIVIDUAL LEVEL

Having identified a number of individual difference variables that may substantially contribute to between-person disparities in end-of-life change in well-being, we now move one step further and consider variables located at the contextual level. Specifically, following developmental contextualist ideas, the characteristics of the communities and societies in which individuals live likely reveal insights into if, how, and why between-person disparities in (the progression of) end-of-life well-being exist. To set up a framework for future inquiries, we first briefly provide a broad conceptual embedding for our proposal and consider theoretical accounts that relate the various service, social, and physical components of the community (listed in Figure 2) to key individual-level outcomes, such

as (trajectories of) psychological health and well-being. In a second step, we target the societal level and consider conceptual arguments and empirical evidence if and how between-person inequalities in well-being can be accounted for by various national characteristics (also listed in Figure 2).

**Communities and Between-Person Disparities in Late-Life Well-Being**

Lifespan psychological and sociological perspectives have long advanced that individuals live in contexts that create both opportunities for, and constraints on, individual developmental pathways (Baltes, 1997; Cairns, Elder, & Costello, 1996; Elder, 1974; Lerner & Kauffman, 1985; Magnusson, 1996; Riley, 1987; Verbrugge & Jette, 1994). One branch of this perspective has focused on the importance of ecological factors, which include views as diverse as social disorganization (Faris & Dunham, 1939), human ecology (Bronfenbrenner, 1979), environmental gerontology (Lawton, 1982), or environmental psychology (Wohlwill, 1970). For example, social disorganization theory (Faris & Dunham, 1939; Sampson, Raudenbush, & Earls, 1997) proposes that characteristics of disadvantaged neighborhoods such as poverty and residential instability result in attenuated institutional strength, limited network interaction, diminished neighborhood attachment, and low levels of informal social control. Such macro-level factors, in turn, can be expected to be linked to individual-level outcomes such as increased risk for victimization and compromised mental health (e.g., depression, psychiatric disorders). In a related vein, notions of environmental gerontology have long highlighted the critical role of both physical and social environments for the maintenance of functioning into late life (M. M. Baltes, 1996; Wahl & Lang, 2004). As a classic example, Powell Lawton's environmental docility hypothesis suggests that such environmental features become increasingly important as personal competences decline (see Lawton, 1990).

We acknowledge that the nomenclature and specific definitions differ between the various areas of study, and that important distinctions are often made (e.g., communities vs. neighborhoods) in

the various disciplines. In the current chapter, we are primarily focusing on the common feature of these approaches to highlight that characteristics of the broad residential area people are living in are important for individual-level outcomes. We thus decided to primarily use the more generic term community effects, but also use this term interchangeably with neighborhood effects or effects of the residential environment.

Making liberal use of these perspectives, we consider three features of individuals' contexts – service, social, and physical components ranging from more micro-level features of one's residence to more macro-level characteristics of one's neighborhood, city or county (for overview, see Leventhal & Brooks-Gunn, 2000; Robert, 1999; Sampson et al., 2002; Wahl & Lang, 2004). In the following, we review conceptual accounts linking these contextual-community features (see Figure 2) to individual-level outcomes and use select empirical findings for illustration. We note that the distinction between components is primarily of heuristic value and acknowledge that a given community characteristic often cuts across various components.

***Service.*** One set of features highlights the importance of the service environment and particularly the role of institutional resources (e.g., quantity, quality, density, availability, affordability, and accessibility) for promoting a healthy environment and accommodating people's needs (Leventhal & Brooks-Gunn, 2000). For example, wealthy communities may allow for and draw higher quality health services and institutions that directly or indirectly benefit health (Browning & Cagney, 2003). Similarly, individuals who spent the last years of their lives in communities with a dense system of high-quality health care may have better chances of maintaining well-being in the face of increased risks for debilitating diseases as compared with individuals living in communities with poor health-care access.

***Social.*** A second set of concepts point to the social environment and to mechanisms that are broadly tied to processes of social cohesion and collective efficacy (see Bandura, 1986; Sampson et al.,

1997; Thompson & Krause, 1998). For example, socio-economically deprived areas are often defined by factors that undermine the development or maintenance of social integration, positive affiliations with others, and a generally supportive and engaging community culture. These factors might manifest as features of the social environment including residential instability, various forms of incivility (e.g., criminal victimization) or high levels of social mistrust. The resulting lack of social ties and support may either have direct implications for well-being and health or indirect effects, either via factors such as ambitions, attitudes, and motivation, or via processes of informal social control such as monitoring, supervision, and the availability of role models (see Berkman, Glass, Brisette, & Seeman, 2000; Cohen & Wills, 1985; Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; House, Landis, & Umberson, 1988; Seeman, 2001).

***Physical.*** A third broad category of neighborhood factors with possibly moderating (e.g., deleterious or beneficial) effects on individual health and well-being includes the physical features of environment (Lawton, 1982; Wahl, 2001). Physical factors that may be of relevance for well-being include noise and pollution, heightened stress and risks for accidents, or inadequate sanitation (see Krause, 1996). In a similar vein, the Disablement Process model (Verbrugge & Jette, 1994) proposes that extra-individual factors in the physical or built environment can make a profound difference in whether or not functional limitations result in disability. For example, a woman with limitations in lower-body functioning (e.g., being able to walk only a couple of steps consecutively) may still be able to leave her house on a regular basis when she is living on the ground floor, but not when she is living in the sixth floor without an elevator (see also Clarke & George, 2005).

The above conceptual arguments map onto a series of empirical reports documenting that neighborhood-level characteristics such as socioeconomic disadvantages or violence are indeed linked with individual-level physical and psychological health variables reflecting functional health, well-being, and mortality (Argyle, 1999; Balfour & Kaplan, 2002; Kawachi & Berkman, 2003; Krause,

2003; Marmot & Wilkinson, 1999; Sampson, Morenoff, & Gannon-Rowley, 2002; Silver, Mulvey, & Swanson, 2002). However, the great bulk of these studies has focused on outcomes in early phases of life such as childhood or adolescence and often has been cross-sectional in nature. We propose that key insights can be gained from addressing if and how community factors relate to between-person disparities in well-being at the end of life as well as its progression over time (i.e., developmental change).

Cross-sectional evidence from adult samples provides some preliminary evidence for such as proposal. For example, Shields, Price, and Wooden (2009) reported from an Australian data set that neighborhood effects accounted for less than 3% of interindividual differences in reports of life satisfaction (for similar reports from the UK, see Propper et al., 2005). Based on tenets of lifespan psychology (Baltes, 1997), we would expect that the size of the overall community-level effects would be considerably larger when the last phase of life is targeted and also generalizes to the consideration of change trajectories. More specifically, an ever-growing need for cultural resources (e.g., supportive environments) can be expected in order to compensate for the increasing "*biogenetic incompleteness of human life*" (Baltes, 1997) as evidenced in, for example, accumulating health constraints. Accordingly, it appears conceivable that individuals late in their lives are particularly susceptible to residential environments, probably because health constraints and functional limitations may necessitate a greater reliance and dependency on municipal resources and services (e.g., Lawton, 1990).

To empirically address such a proposal, two sets of analyses could prove instrumental. In a first step, it would be key to quantify the relative contribution of community characteristics to late-life disparities in well-being and its progression towards the end of life. Such a finding would be important in and of itself because it provides a rough quantification for the extent to which individual development and end-of-life quality of life is shaped by the structure of opportunities and constraints in one's living environment. This would also help determine how much of what would conventionally

be thought to reflect differences between persons in reality is a reflection of differences between the residential areas where people live. In a second step, the objective would be to explore the role that specific service, social, and physical characteristics of the communities may play for between-person heterogeneity in (the progression of) late-life well-being. The above considerations lead us to expect that, for example, individuals living in wealthy communities may report higher late-life well-being and show less pronounced decline relative to individuals living in poorer communities, over and above key individual predictors of well-being. Also, it appears conceivable that the predictive effects of individual factors such as lower education or disability do not necessarily operate similarly across context, but are exacerbated in structurally disadvantaged communities. For example, disabled people in poor communities may show more pronounced decline with approaching death than do disabled people in wealthy communities. Taken together, such results would be consistent with conceptual notions that the contexts in which people are living and dying may impose additional constraints onto the already compromised adaptive capacity at the end of life. More in-depth studies are needed to pinpoint the specific mechanisms by which macro-level characteristics permeate or "get under the skin" of individuals (cf. Seeman, 2001).

**Societies and Between-Person Disparities in Late-Life Well-Being**

A better understanding of between-person inequalities in late-life well-being may also substantially benefit from targeting the role of factors that reside at an even higher level of aggregation, namely nations and societies (see Figure 2). A first research approach is to treat samples from different nations that share basic characteristics (e.g., individualistic societies with comparable wealth) as independent replications of one another. If substantively similar findings emerge, this may serve replication and generalization purposes and be taken to indicate the robustness of the phenomenon of interest. For example, we have used long-term longitudinal data of deceased participants in national samples from

Germany (SOEP), the UK (BHPS), and the US (HRS) to examine the prototypical onset of mortality-related well-being decline. Despite only partial overlap at the measurement level, we found strikingly similar construct-level results: In all three nations, we identified prototypical transition points between three and five years prior to death, after which normative rates of well-being decline steepened by a factor of three or more (Gerstorf, Ram et al., in press).

A second highly valuable research approach is to specifically target the role that communalities and differences between nations may play for between-person disparities in late-life well-being. To start with, national differences have long been reported in average levels of well-being (see Diener et al., 1999). For example, the Gross National Product per capita, an indicator of national wealth, typically shows moderate to strong relations with indicators of well-being across nations (Inglehart, 1990): People living in richer nations also report higher average levels of well-being. Similar relations have been repeatedly documented for other economic and social indicators at the national level, including inflation rate, overall level of economic inequality (e.g., Gini coefficient), unemployment rate, amount of government-provided unemployment benefits, etc. (see DiTella, MacCulloch, & Oswald, 2003; Haller & Hadler 2006; Veenhoven, 1995). Further, as noted in several comparisons of average well-being in individualistic vs. collectivistic nations, cultural norms and attitudes also relate to average levels of well-being (e.g., Diener & Suh, 2003). However, the available longitudinal evidence regarding changes in well-being is less conclusive. Some studies report that national changes in economic development and democratization are accompanied by changes in average levels of well-being (e.g., Inglehart, Foa, Peterson, & Welzel, 2008), whereas other studies rather suggest stability (Diener & Oishi, 2000; Easterlin, 2005; Kahneman & Krüger, 2006). Even less is known about if and how societal-level differences map onto individual-level changes in well-being and what such associations look like at the very end of life.

We argue that between-person inequalities in late-life well-being and its progression towards the end of life may in part be shaped by societal-level differences (see Figure 2). To start with, it is conceivable that effects of the above-listed key variables like income inequalities follow people into the last years of life. One possible scenario is that between-person disparities in well-being decline are substantially exacerbated in nations with large income inequalities. In addition, national differences in factors that directly or indirectly link to late-life health outcomes are well documented. These variables include, but are not limited to, life expectancies or a public healthcare system. We would expect between-person inequalities in well-being decline to be diminished in nations with a well-functioning public healthcare system as opposed to nations that lack such systems.

To conclude, our objective has been to draw from a long history of research in a variety of different disciplines so as to argue that community and societal factors both represent a very important unit of analysis in understanding between-person disparities in the progression of late-life well-being. The preliminary evidence reviewed generally supports this proposal and offers routes for future inquiry to substantiate and expand these initial findings.

## SUMMARY AND OUTLOOK

In sum, we have made three sets of arguments about the study of between-person disparities in late-life well-being. First, ubiquitous reports of a "stability-despite-loss phenomenon" of well-being do not generalize into years of life immediately preceding death. Instead, mean-level representations of the end of life are characterized by a rapid deterioration in well-being. Second, there is vast heterogeneity in how people experience the last years, and biopsychosocial individual difference factors like socio-demographic characteristics, cognitive fitness, pathology, or disability may all provide both unique and

shared contributions to such disparities. Third, we have argued that macro-contextual factors such as the social, service, and physical characteristics of the communities and societies people are living and dying in profoundly shape the nature of micro-level processes and thereby contribute to inequalities in the progression of individual late-life well-being. The conceptual reasoning forecasts some of the insights that can be gained by pursuing this line of research, but also underscores the challenges researchers must deal with.

Living a life with dignity and maintaining well-being is a key ingredient of quality of life. The line of research briefly sketched in this chapter promises to shed some light on the patterns of well-being decline in late life, and help us understand between-person differences in such trajectories and the role that factors at the individual-, community-, and societal-level may play. Such knowledge about how, why, and which segments of society may be experiencing decrements in psychological health and well-being shall inform the development of social policy and preventive intervention programs that may eventually alleviate the societal and personal costs of late-life decline and reduce or minimize between-person disparities in the decline of well-being at the end of life.

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Table 1

*Linear Rates of Change in Well-Being Indices for Deceased Participants over Age and Distance-to-Death in T-Score Units per Year and Estimated Transition Points to Terminal Decline, Separately by Study and Nation.*

| | Progression of late-life well-being | | |
|---|---|---|---|
| | Single-phase models: Rate of linear change per year | | Multi-phase models: Estimated transition point |
| | Chronological age | Distance-to-death | Distance-to-death |
| **Germany** | | | |
| Socio-Economic Panel ($n$ = 2,764, age at death: $M$ = 72 years) | | | |
| Life satisfaction (cognitive-evaluative well-being) | – 0.26[a] | – 0.75[a] | 4.27 |
| | (±0.02) | (±0.03) | (±0.01) |
| Berlin Aging Study ($n$ = 414, age at death: $M$ = 92 years) | | | |
| Life satisfaction (cognitive-evaluative well-being) | – 0.33 | – 0.75 | 4.00 |
| | (±0.05) | (±0.10) | (±2.50) |

| | | | |
|---|---|---|---|
| **Great Britain** | | | |
| British Household Panel ($n$ = 2,030, age at death: $M$ = 75 years) | | | |
| General Health Questionnaire (affective well-being) | – 0.08 | – 0.57 [a] | 4.85 |
| | (±0.02) | (±0.05) | (±0.18) |
| **United States** | | | |
| Health and Retirement Study ($n$ = 6,195, age at death: $M$ = 80 years) | | | |
| Lack of depressive symptoms (affective well-being) | – 0.10[a] | – 0.56[a] | 2.92 |
| | (±0.01) | (±0.03) | (±0.20) |

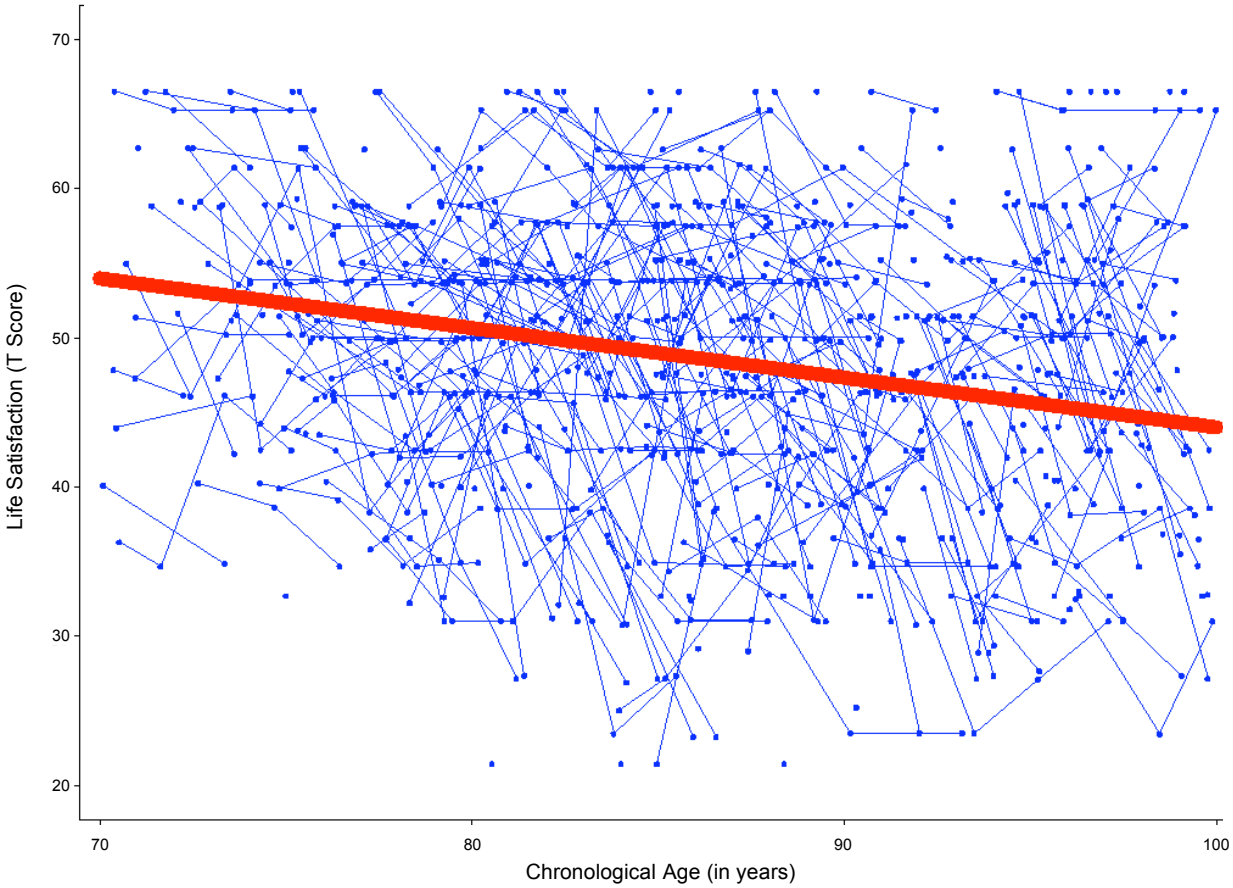
*Note*. Parameter estimates (standard errors) from growth curve models are reported. [a] = quadratic component of change reliably different from zero, which indicated some accelerated decline at advanced ages or near death. Results taken from Gerstorf, Ram et al., 2008a,b, in press.

Figure Caption

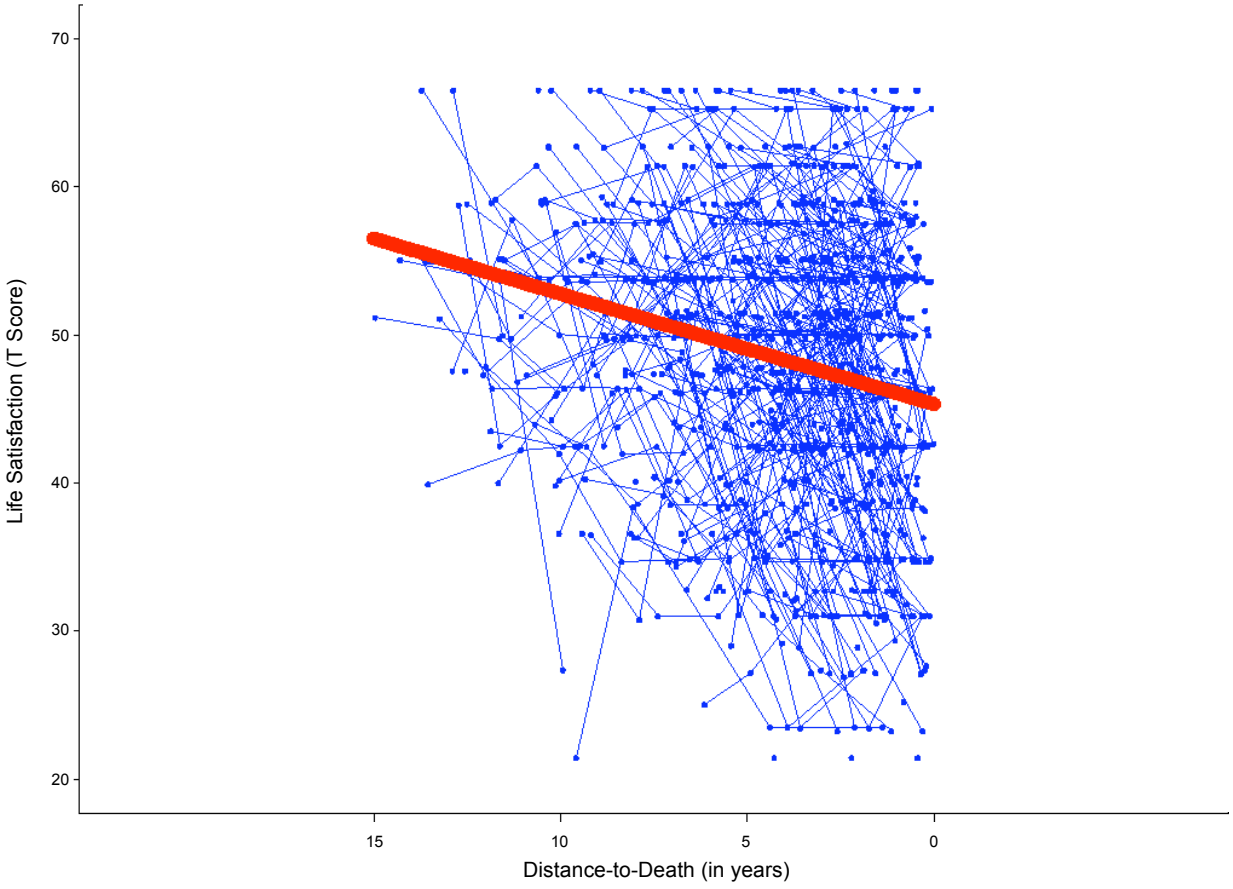
*Figure 1*. Contrasting late-life change in well-being over chronological age and distance-to-death. Data from now deceased, 70 to 100 year old participants in the Berlin Aging Study (BASE) revealed that interindividual differences in within-person changes in well-being were better represented in relation to distance-to-death (upper Panel) than in relation to chronological age (lower Panel) and also indicated steeper average rates of decline. Figure reproduced from Gerstorf, Ram et al., 2008b.

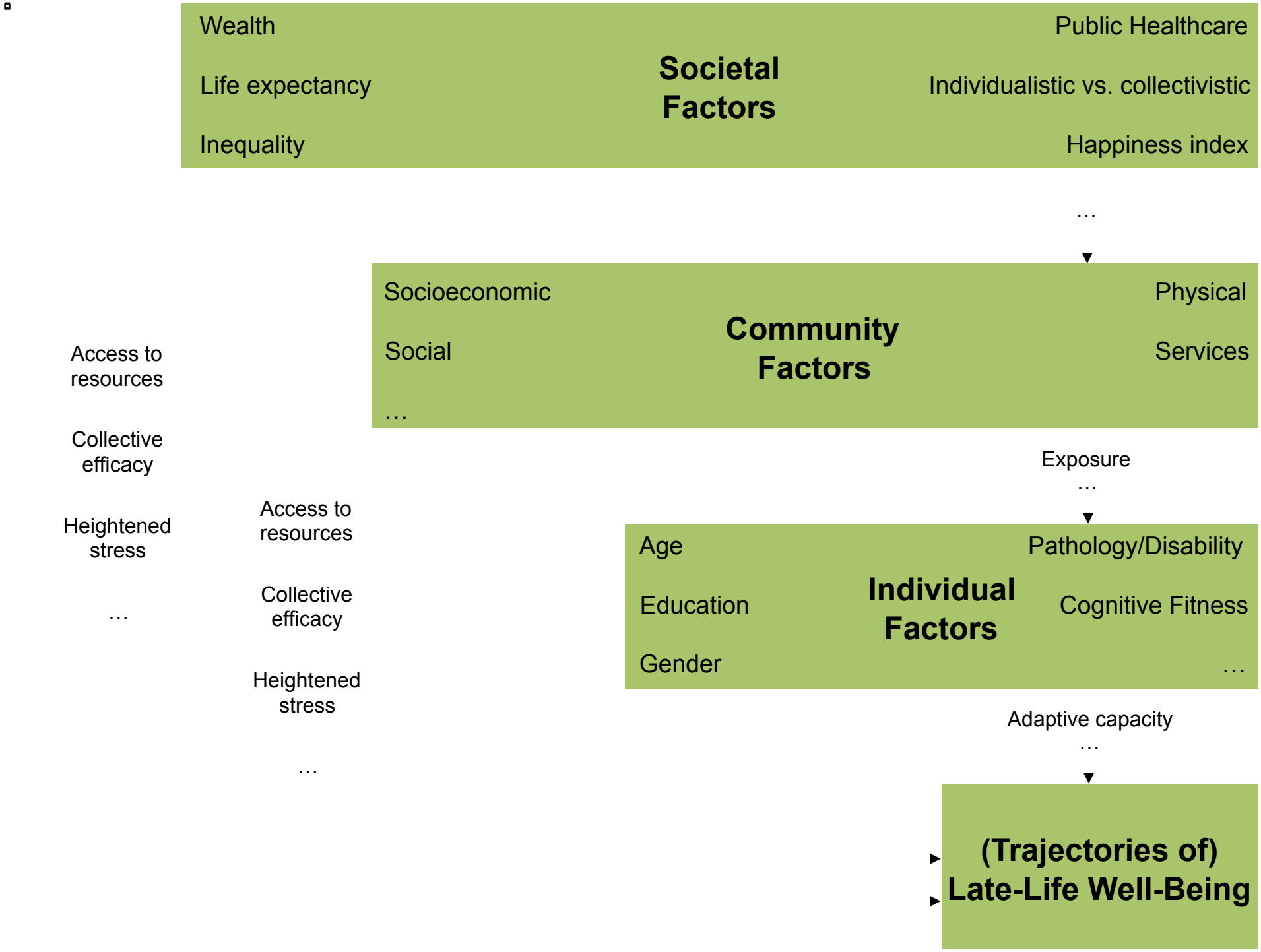
*Figure 2*. Graphical representation of possible factors (boxes) and underlying mechanisms (arrows) affecting late-life well-being and its progression towards the end of life. At the individual level, factors such as socio-demographic characteristics, pathology, disability, cognitive fitness, etc. may each contribute to between-person disparities in (trajectories of) late-life well-being. One exemplar mechanism by which individual factors may operate on well-being are limitations in one's adaptive capacity. At some higher levels of aggregation, community factors such as socioeconomic, service, social, or physical characteristics may also affect well-being. Possible direct mechanisms include access to resources, collective efficacy, or heightened stress as well as exposure as an exemplar indirect mechanism. At a still higher level of aggregation, societal factors including wealth, life expectancy, or a public healthcare system may additionally shape the nature and course of late-life well-being. Such national factors may operate either directly or indirectly.

**A**


Life Satisfaction (T Score)
70
60
50
40
30
20
70
80
90
100
Chronological Age (in years)

**B**


Life Satisfaction (T Score)
70
60
50
40
30
20
15
10
5
0
Distance-to-Death (in years)


Wealth
Life expectancy
Inequality
Societal Factors
Public Healthcare
Individualistic vs. collectivistic
Happiness index
…
Socioeconomic
Social
…
Community Factors
Physical
Services
Access to resources
Collective efficacy
Heightened stress
…
Exposure
…
Access to resources
Collective efficacy
Heightened stress
…
Age
Education
Gender
Individual Factors
Pathology/Disability
Cognitive Fitness
…
Adaptive capacity
…
(Trajectories of) Late-Life Well-Being